Saarland University is a campus university that is internationally recognized for its strong research programmes. Fostering young academic talent and creating ideal conditions for teaching and research are a core part of the university's mission. As part of the University of the Greater Region, Saarland University enables students and staff to share and exchange knowledge and ideas between disciplines, between universities and across borders. With over 17,000 national and international students, studying more than a hundred different academic disciplines, Saarland University is a diverse and dynamic learning environment. [Saarland University is officially recognized as one of Germany's family-friendly higher-education institutions and with a combined workforce of more than 4,000 it is one of the largest employers in the region.]

The Department of Physical Chemistry is inviting applications for the following position commencing at the earliest opportunity.

Doctoral Research Position (m/f/x)

Reference number W2695, salary in accordance with the German TV-L salary scale[1], pay grade: E13 TV- L, duration of employment: 3 years, volume of employment: 50 % of standard working time.

Workplace/Department:

The Maser lab at Saarland University (UdS) has an opening for a PhD candidate in natural science to study emerging collective effects in maser oscillators, comprising an ensemble of NV centres in diamond.
The research focus of the UdS Maser lab is to study and characterise room-temperature solid-state masers, within the framework of cavity quantum electrodynamics. A maser is based on similar working principles as a laser, while operating at microwave frequencies. The aim is to understand maser dynamics in the regime of strong light – matter interactions for potential applications in sensing, communication, timekeeping and quantum technologies.

Main purpose of the position: Studying maser dynamics in a regime of strong light-matter interactions or strong dissipative interactions. Here, the spin ensemble relates to 'matter' and 'light' is represented by microwave photons residing in a high-quality resonator. Under strong magnetic dipole coupling both systems hybridise with coherent energy exchange. Maser emission in this regime exhibits fascinating dynamics, which will be studied by different microwave spectroscopy methods, in the steady-state and the time-domain.

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[1] TV-L = collective agreement on remuneration of public sector employees in the German *Länder*
The pay grade assigned to an employee depends on their professional qualifications and the number of years of service. Each pay grade is further subdivided into levels. Entry-level employees with no previous experience will initially be assigned a level 1 rating. After one year at level 1 of the E10 pay grade, an employee will move up to level 2. After a further two years, the employee will move to level 3, etc.

Job requirements and responsibilities:

- Characterization of maser dynamics in the strong collective coupling regime
- Perform experiments using steady-state microwave spectroscopy, as well as time-resolved spectroscopy methods
- Design and development new or improve existing experimental setups
- Perform data analysis and simulations to complement the experimental work
- Help produce independent and original research within the Maser lab, submit publications to peer-reviewed journals
- Support overseeing masters/bachelor students
- Contribute to the induction of other research staff and students

Your academic qualifications:

- Completed scientific university studies in Physics, Chemistry or equivalent (M.Sc.)
- Language skills (according to GER): Englisch – C1

The successful candidate will also be expected to:

- Familiar in programming (e.g. Python, Matlab etc.)
- Follow and actively promote UdS policies, including Equal Opportunities and Race Equality policies and maintain awareness and observation of Fire and Health & Safety Regulations
- Carry out any other duties within the scope, spirit and purpose of the job as requested by the line manager

What we can offer you:

- A flexible work schedule allowing you to balance work and family, among other things the possibility of teleworking
- Secure and future-oriented employment with attractive conditions
- A broad range of further education and professional development programmes (for example language courses)
- An occupational health management model with numerous attractive options, such as our university sports programme
- Supplementary pension scheme (RZVK)
- Discounted tickets on local public transport services ('Job-Ticket' of the saarVV)

We look forward to receiving your **meaningful online application** (in a PDF file) by **15.09.2025** to **christoph.zollitsch@uni-saarland.de** (please enter your mail address here). Please include the reference number W2695 in the subject line of the e-mail.

If you have any **questions**, please contact us for assistance. Your contact:
Herr Christoph Zollitsch
Physical Chemistry
Tel.: +49 681 302 9002767

Pay grade classification is based on the particular details of the position held and the extent to which the applicant meets the requirements of the pay grade within the TV-L salary scale. Part-time employment is generally possible.

If you have obtained a foreign university degree, a proof of the equivalence of this degree with a German degree by the Zentralstelle für ausländisches Bildungswesen (ZAB) is needed before hiring. If necessary, please apply for this in time. You can find more information at https://www.kmk.org/zeugnisbewertung.

Unfortunately, neither costs for attending an interview at Saarland University nor costs for any certificate evaluation by the ZAB can be reimbursed in principle.

We welcome applications regardless of gender, nationality, ethnic and social origin, religion/belief, disability, age, and sexual orientation and identity. In accordance with its policy of increasing the proportion of women, the University actively encourages applications from women. Applications from severely disabled persons will be given preferential consideration in the event of equal suitability.

When you submit a job application to Saarland University you will be transmitting personal data. Please refer to our privacy notice for information on how we collect and process personal data in accordance with Art. 13 of the Datenschutz-Grundverordnung. By submitting your application you confirm that you have taken note of the information in the Saarland University privacy notice.